UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site Name: Gyp Hills (SD-3, SD-2)

Site ID: R042XB013NM

Major Land Resource Area: 042 - Southern Desertic Basins, Plains, and Mountains

Physiographic Features

This site occurs on hills, escarpments and breaks between higher and lower plains or terraces, and canyon sides between deep desert drainageways. Slopes range from sloping to very steep. Direction of slope varies, the northern exposures having cooler and more moist soils, and the southern exposures having hotter and drier soils in general. Elevations range from 2,500 to 4,000 feet.

Land Form:
(1) Hill
(2) Hillside
(3) Canyon

	Minimum	Maximum
Elevation (feet):	2500	4000
Slope (percent):	10	45
Water Table Depth (inches):	N/A	N/A
Flooding:		
Frequency:	N/A	N/A
Duration:	N/A	N/A
Ponding:		
Depth (inches):	N/A	N/A
Frequency:	None	None
Duration:	None	None
Runoff Class:	High	Very high
Aspect:		

Climatic Features

The frost-free season ranges from 190 to 225 days between early April and late October. The optimum growing season of the major native warm season plants coincides with the summer rains during June, July, August, and September. However, plants can make some growth at any time during the frost free period when moisture is available and minimum daily temperatures stay above 51 degrees F. Re-vegetation on this site will be limited to plants which can take advantage of moisture at the time it falls, since the soil profiles have large amounts of available water for short periods of time of tome and then rapidly dry. The majority of precipitation comes in the form of high intensity, short duration thunderstorms. Little or no available moisture can be stored in the soil profiles of this site. Strong winds from the southwest blow during January through June, which accelerate soil drying within the plant root zone and further discourage cool season plant growth or occupancy of the site.

	Minimum	Maximum
Frost-free period (days):	179	212
Freeze-free period (days):	200	233
Mean annual precipitation (inches):	8.0	10.5

Monthly precipitation (inches) and temperature (°F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip. Min.	0.37	0.36	0.23	0.18	0.29	0.57	1.42	1.92	1.53	1.01	0.48	0.57
Precip. Max.	0.54	0.39	0.27	0.36	0.45	0.64	1.9	2.2	1.66	1.07	0.58	0.78
Temp. Min.	20.8	25.5	31.2	28.0	46.4	54.3	61.1	59.1	51.5	39.8	28.8	22.3
Temp. Max.	58.1	63.8	71.0	79.3	87.4	96.4	95.5	92.7	87.5	78.7	67.2	58.5

Climate Stations:
(1) NM3855, Hatch. Period of record 1961 - 1990
(2) NM8387, Socorro. Period of record 1961 - 1990

Influencing Water Features

This site is not influenced by water from wetlands or streams.

Wetland Description:	System	Subsystem	Class
(Cowardin System)			

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Representative Soil Features

The soils of this site are very shallow and well to somewhat excessively drained. The surface layers are loam, fine sandy loam, and gravelly loam overlying dense layers of cemented gypsum material or gypsum rock at depths of less than 8 inches. The gypsum rock and gypsum materials commonly outcrop to the surface as inclusions of rock outcrop or raw gypsumland which are void of vegetation and not part of the ecological site. In general the greater the slope, the greater the amount of gypsum and rock outcrop. The gypsum materials and gypsum rock are restrictive to root development. Also included within the site delineation are pockets of deeper soil material of the loamy range site. The soils have moderate permeability and very low water holding capacity. Plant, soil, air, water relationships are poor. The site has a droughty appearance due to the soils inability to support a dense stand of vegetation. If unprotected by plant cover and organic residue, the soil becomes easily water eroded.

Predominant Parent Materials:
Kind: Marine deposits
Origin: Gypsum

Surface Texture:	(1)	Gravelly Fine sandy loam
	(2)	Sandy loam
	(3)	Loam
Subsurface Texture Group:		Loamy
Surface Fragments <=3" (% Cover):		14
Surface Fragments > 3" (% Cover):		10
Subsurface Fragments <=3" (% Volume):		25
Subsurface Fragments > 3" (% Cover):		10
Drainage Class:		Moderately well drained To Well drained
Permeability Class:		Moderately slow To Slow

	Minimum	Maximum
Depth (inches):	0	24
Electrical Conductivity (mmhos/cm):	0	8
Sodium Absorption Ratio:	N/A	N/A
Calcium Carbonate Equivalent (percent):	N/A	N/A
Soil Reaction (1:1 Water):	7.4	8.4
Soil Reaction (0.01M CaCl2):	N/A	N/A
Available Water Capacity (inches):	3.0	3.0

Plant Communities

Ecological Dynamics of the Site

State Containing Historic Climax Plant Community:
The general aspect of this site is that of a rough, broken badlands, sparsely vegetated and highly dissected. There is more of the surface area comprised of bare ground and rock than that which is vegetated. The map delineations of this site are in actuality a complex of bare ground, rock outcrop, a few deep soil pockets in cracks and fissures of the bed rock and areas of very shallow soils. The vegetation on the very shallow soil areas are dominated by rhizomatous and stoloniferous short grasses and forbs. Shrubs and half shrubs are apparent and rather unevenly distributed. The potential plant community varies somewhat with depth of soil, exposure and slope. Large bare areas with only surface lichens are common. Where there is little or no soil over the gypsum material only rough coldenia may be present.

Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	16
Bare ground	48
Surface gravel	14
Surface cobble and stone	10
Litter (percent)	12
Litter (average depth in cm.)	1

Plant Community Annual Production (by plant type):

	Annual Production (lbs/ac)		
Plant Type	Low	RV	High
Grass/Grasslike	40	80	120
Forb	40	80	120
Tree/Shrub/Vine	20	40	60
Lichen			
Moss			
Microbiotic Crusts			
Totals	100	200	300

Historic Climax Plant Community Plant Species Composition: Plant species are grouped by annual production **not** by functional groups.

Group	Grass/Grasslike Common Name	Scientific Name	Annual Production in Pounds Per Acre Low	High
1	gypsum grama black grama	*Bouteloua breviseta* *Bouteloua eriopoda*	40	60
2	bristle panicum gyp dropseed	*Setaria ramisetum* *Sporobolus nealleyi*	20	30
3	threeawn fluffgrass	*Aristida* *Dasyochloa pulchella*	2	10

Group	Shrub/Vine Common Name	Scientific Name	Annual Production in Pounds Per Acre Low	High
4	fourwing saltbush	*Atriplex canescens*	10	20
	littleleaf sumac	*Rhus microphylla*		
5	knifeleaf condalia	*Condalia spathulata*	10	14
	crown of thorns	*Koeberlinia spinosa*		
6	creosote bush	*Larrea tridentata*	6	10
	algerita	*Mahonia trifoliolata*		
	soaptree yucca	*Yucca elata*		
7	pricklypear	*Opuntia*	2	6
	pricklyleaf dogweed	*Thymophylla acerosa*		

Group	Forb Common Name	Scientific Name	Annual Production in Pounds Per Acre Low	High
8	hairy crinklemat	*Tiquilia hispidissima*	30	50
9	flax	*Linum*	10	20
	blazingstar	*Mentzelia*		
	fiddleleaf	*Nama*		
	scorpion weed	*Phacelia integrifolia*		
	threadleaf groundsel	*Senecio flaccidus*		
10	woolly beeblossom	*Gaura villosa*	10	20
	whitest evening-primrose	*Oenothera albicaulis*		
	penstemon	*Penstemon*		
	devil's claw	*Proboscidea althaeifolia*		
	whitestem paperflower	*Psilostrophe cooperi*		
11	Forb, annual		2	10
	gyp buckwheat	*Eriogonum gypsophilum*	2	10

Plant Growth Curve:
Growth Curve Number: NM2504
Growth Curve Name: Historic Climax Pant Community
Growth Curve Description: SD-2 Warm Season Plant Community

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	10	10	25	30	15	5	0	0

Ecological Site Interpretations

Animal Community:
This site provides habitats which support a resident animal community that is characterized by bobcat, gray fox, black-tailed jackrabbit, rock squirrel, rock pocket mouse, red-tailed hawk, scaled quail, loggerhead shrike, Texas horned lizard, lesser earless lizard, and western diamondback rattlesnake.

Where closely associated with high cliffs and ledges as in the Guadalupe and Sacramento Mountains, golden eagle and prairie falcon hunt over the site.

Fourwing saltbush, littleleaf sumac, spiny allthorn, and knifeleaf condalia provide protective cover for scaled quail. Fourwing saltbush and littleleaf sumac are browsed by desert mule deer. Seed, green herbage and fruit from a variety of grasses, forbs, and shrubs provide food for a number of birds and mammals, including dove and quail.

Hydrology Functions:
The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series	Hydrologic Group
Cottonwood	C
Holloman	C
McCarran	C
Yesum	B
Alamogordo	B
Aztec	B

Recreational Uses:
This site offers recreation potential for hiking, horseback riding, rock, gem, and mineral collecting, nature observation and photography, and quail, dove, and predator hunting.

Wood Products:
This site provides little or no wood products other than curiosities and small furniture which can be made from the roots and stems of mesquite where it has invaded. The woody pods of devilsclaw are also used in curiosities.

Other Products:

About 75% of the area within map delineation's of this site are not suitable for domestic livestock grazing because of steep slope, rock outcrop and lack of forage. Grazing is least damaging to this sparse vegetative cover during fall and winter. The site is best utilized by goats or yearling cattle following seasons of abundant moisture. During normal or unfavorable years the plants are adequately utilized by native fauna. This site should not be depended on to furnish needed forage for perennial livestock breeding operations but can furnish some incidental grazing in conjunction with adjacent sites in the same pastures.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month	
Similarity Index	Ac/AUM
100 - 76	7.5 – 10.0
75 – 51	9.5 – 13.0
50 – 26	13.1 – 19.0
25 – 0	30.0 - +

Plant Preference by Animal Kind:

	Code	Species Preference	Code
Stems	S	None Selected	N/S
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruit/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Animal Kind: Livestock

Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Gyp grama	Bouteloua breviseta	EP	N/S	N/S	N/S	N/S	N/S	D	D	D	D	D	N/S	N/S
Black grama	Bouteloua eriopoda	EP	P	P	P	D	D	D	D	D	D	D	P	P
Blue grama	Bouteloua gracilis	EP	D	D	D	D	D	P	P	P	P	P	D	D
Fourwing saltbush	Atriplex canescens	EP	P	P	P	P	P	D	D	D	D	D	P	P
Mormon tea	Ephedra	EP	D	D	D	D	N/S	N/S	N/S	N/S	N/S	D	D	D
Soaptree yucca	*Yucca elata*	F	N/S	N/S	N/S	N/S	P	P	N/S	N/S	N/S	N/S	N/S	N/S

Supporting Information

Associated Sites:

Site Name	Site ID	Site Narrative

Similiar Sites:

Site Name	Site ID	Site Narrative

State Correlation:
This site has been correlated with the following states:

Inventory Data References:

Data Source	Number of Records	Sample Period	State	County

Type Locality:
Eddy County, New Mexico – Southwest corner of Northwest Quarter, Section 27, Township 26 S., Range 24E., NMPM. 2/14 miles N. E. of the Texas-New Mexico state line, on the west side of highway 180 on the A. M. Leeman Ranch GA Mapping Unit, Map Sheet 148 insert, Eddy Area, New Mexico Soil Survey Report.

Relationship to Other Established Classifications:

Other References:
Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Sierra County Dona Ana County Grant County Hidalgo County Luna County Otero County Eddy County.

Characteristic Soils Are:
Cottonwood loam, very shallow, less than 8 inches thick, greater than 9 percent slopes.
Holloman loam, very shallow, less than 8 inches thick, greater than 9 percent slope.
McCarran loam, very shallow, less than 8 inches thick, greater than 9 percent slopes.
Yesum fine sandy loam, less than 8 inches thick, greater than 9 percent slopes.
Alamogordo fine sandy loam, less than 8 inches thick, greater than 9 percent slopes.
Aztec gravelly loam (as mapped in Otero County, New Mexico)

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	07/12/1979	Don Sylvester	07/12/1979

Site Description Revision:

Author	Date	Approval	Date
Dr. Brandon Bestelmeyer	04/12/02	George Chavez	04/15/02
George Chavez	04/12/02		